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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-----------------------------|------------------|
| 10/631,961 | 08/01/2003 | Kiyoshi Kato | 33035M129 | 2527 |
| 441 | 7590 | 09/21/2005 | | |
| SMITH, GAMBRELL & RUSSELL, LLP 1850 M STREET, N.W., SUITE 800 WASHINGTON, DC 20036 | | | EXAMINER LEPISTO, RYAN A | |
| | | | ART UNIT 2883 | PAPER NUMBER |

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| <i>Office Action Summary</i> | Application No. | Applicant(s) |
|-------------------------------------|------------------------|---------------------|
| | 10/631,961 | KATO ET AL. |
| Examiner | Ryan Lepisto | Art Unit 2883 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 12 August 2005.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,3,4,6-9,11-14,16 and 18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,3,4,6-9,11-14,16 and 18 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 01 August 2003 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1, 3 and 9** are rejected under 35 U.S.C. 102(b) as being anticipated by **Oikawa (US 5,386,488)**. Oikawa teaches an optical module (Figs. 18-20) comprising a body (4) enclosing a semiconductor device (emitter or receiver, 12), a ceramic ferrule section (52) (column 13 lines 24-25), a tubular metal holder ferrule (50) for holding the ceramic ferrule section (52) (column 13 lines 24-30) having a tapered inner diameter that is smaller near the weld points (the diameter here is just enough to hold a fiber) than at the tapered portion (52B), a metal sleeve (6) positioned to the body (4) for securing the holder (50) to the body by welding the holder (50) to the sleeve (6) which is welded to the body (4) (Fig. 19, column 14 lines 30-32) and a lens (120) between the ferrule and semiconductor device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 7, 11-14 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamane et al (US 6,126,325) (Yamane) in view of Tatoh (US 6,220,765 B1) (Tatoh).

Yamane teaches an optical module (Figs. 3A-C, 4, 5A-D, 6, 7A-C) comprising a body (80) including a semiconductor element (82), a ferrule (73), a metal tubular holder (71) for securing the ferrule (73) holding a fiber that with the ferrule is slanted at the end to form an end element that restricts light from being reflected back through the fiber (or an isolator) (column 9 lines 55-60), a metal sleeve (71) positioned and welded to the body (80) to secure and welded to the holder (71) (column 5 lines 8-14, 64-67), a guide (Fig. 5D, 6) having a first end (left end of 72) for abutting the holder (71), a second end (opposite the first) and a hole for receiving the ferrule (73) (column 5 lines 61-63), a first portion (inner cylinder of 72) for receiving the ferrule (73) and a second portion (end that connects to 120) for receiving a connector (120) and ferrule (121) of the connector and a third portion (72d, 72e) that formed a groove and reciprocal step for securing to guide to the connector wherein the connector (122) has a pair of side walls (133, 124) having projections (123a, 124a) on each wall, a front wall (near 121) that has a ferrule (121) inserted in it to wall.

Yamane does not teach expressly a nonmetallic ferrule.

Tatoh teaches an optical module comprising a ceramic ferrule that is zirconia (column 11 lines 23-24).

Yamane and Tatoh are analogous art because they are from the same field of endeavor, optical modules for housing semiconductor devices and coupling them to optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a widely used and known ceramic material like zirconia taught by Tatoh since Yamane only pressure fits the ferrule (Yamane, column 5 lines 61-63) to the holder allowing it to be any rigid material known and used in the art.

The motivation for doing so would have been reduce cost by using a widely used and produced ceramic material.

3. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Oikawa as applied to claims 1, 3 and 9 above, and further in view of Tatoh.

Oikawa teaches the optical module described above.

Oikawa does not teach expressly the ceramic ferrule section being zirconia.

Tatoh teaches an optical module comprising a ceramic ferrule that is zirconia (column 11 lines 23-24).

Oikawa and Tatoh are analogous art because they are from the same field of endeavor, optical modules for housing semiconductor devices and coupling them to optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a widely used and known ceramic material like zirconia taught by Tatoh since Oikawa calls for a ceramic ferrule section.

The motivation for doing so would have been reduce cost by using a widely used and produced ceramic material.

4. **Claims 6 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Oikawa as applied to claims 1, 3 and 9 above, and further in view of **Watanabe (US 5,132,532)**.

Oikawa teaches the optical module described above.

Oikawa does not teach expressly two bases arranged side-by-side with one being ceramic and the other being metal and supports the semiconductor device and a driver.

Watanabe teaches an optical module (Fig. 3) with a metal housing and metal base member (43) along side a ceramic base member (44) wherein the metal base (43) supports the semiconductor device (11) and a driver (20).

Oikawa and Watanabe are analogous art because they are from the same field of endeavor, optical modules for housing semiconductor devices and coupling them to optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have a metal base supporting various devices along side a ceramic base as taught by Watanabe since Oikawa teaches both a metal base (4) and printed-circuit board base (44) which can be ceramic as known in the art.

The motivation for doing so would have been reduce cost and complexity by mounting electrical components on ceramic bases since ceramics are the preferred

base for such components (they allow from conductive traces, Watanabe column 3 lines 64-68) and to reduce cost by placing bases side by side to reduce the amount a material needed to electrically or optically connect components on the different bases.

5. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Oikawa as applied to claims 1, 3 and 9 above, and further in view of **Irie et al (US 2002/0085596 A1)** (Irie).

Oikawa teaches the optical module described above.

Oikawa does not teach expressly the semiconductor device disposed on a thermoelectric cooler.

Irie teaches an optical module (Fig. 3) comprising a metal base (6), cooling device (13) supporting a base (12) that supports a semiconductor device (7).

Oikawa and Irie are analogous art because they are from the same field of endeavor, optical modules for housing semiconductor devices and coupling them to optical fibers.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a thermoelectric cooler as taught by Irie in the optical module since the base in most of Oikawa's embodiment is not a specified material besides calling it a printed circuit board which are well known in the art to have cooling, Peltier elements as taught by Irie.

The motivation for doing so would have been to increase stability of the module by cooling heat that is produced by semiconductor emitters (Irie, paragraph 0051).

Response to Arguments

6. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-F 7:30AM-5:00PM.

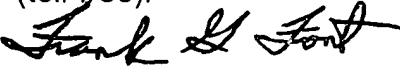
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ryan Lepisto

Art Unit 2883

Date: 9/15/05


Frank Font

Supervisory Patent Examiner

Technology Center 2800